

研究报告

三江平原不同群落小叶章种群生物量及氮、磷营养结构动态

孙志高^{1,2},刘景双¹,王金达¹,秦胜金¹

¹中国科学院东北地理与农业生态研究所, 长春 130012; ²中国科学院研究生院, 北京 100039

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摘要

对三江平原典型草甸和沼泽化草甸两个群落的优势植物小叶章的生物量、结构动态、不同生长阶段各器官的氮、磷含量和储量动态以及氮、磷养分限制状况进行了研究.结果表明,二者各器官生物量差异显著,但均符合模式 $Y=A+B_{1t}+B_{2t^2}+B_{3t^3}$;二者地上各器官生物量均为单峰型,且峰值出现的时间相差15 d左右; F/C 均小于1且前者明显大于后者;二者地上各器官的全氮和全磷含量在生长季均单调下降,且叶>叶鞘>茎,根中全氮变化基本一致,但全磷变化差别很大;二者各器官“三氮”含量特别是 NH_4^+-N 和 NO_3^--N 含量变化较大,且 $\text{NH}_4^+-\text{N}/\text{NO}_3^--\text{N}>1$;根是二者氮、磷的重要储库,而茎、叶和叶鞘的氮、磷储量波动较大;两种小叶章的氮/磷<14,表明氮是影响二者生长的限制性养分,但其对于前者的限制性程度要高于后者.

关键词 [生物量](#) [氮磷营养](#) [结构动态](#) [三江平原](#)

分类号

Biomass structure and nitrogen and phosphorus contents of *Calamagrostis angustifolia* opulations in different communities of Sanjiang Plain

SUN Zhigao^{1,2},LIU Jingshuang¹,WANG Jinda¹,QIN Shengjin¹

¹Northeast Institute of Geography and Agricultural Ecology,Chinese Academy of Sciences,Changchun 130012, China;²Graduate School of Chinese Academy of Sciences,Beijing 100039,China

Abstract

Calamagrostis angustifolia is the dominant species in the typical meadow and marsh meadow communities of Sanjiang Plain. The study on its biomass structure and the N and P contents in its different organs showed that the biomass of different *C. angustifolia* organs in the two types of wetland communities was distinctly different, which could be described by $Y=A+B_{1t}+B_{2t^2}+B_{3t^3}$. The biomass of aboveground part and each organ presented single peak changing, with the maximum value of the latter occurred 15 d after. The F/C values were all less than 1, which was bigger in typical meadow than in marsh meadow. The total N and P contents in different organs of aboveground part all descended linearly in growth season, with the order of leaf>vagina>stem. The total N content in the roots of two *C. angustifolia* types was consistent, while that of total P was quite different. The contents of total N, NH_4^+-N and NO_3^--N , especially of NH_4^+-N and NO_3^--N , varied widely in different organs, with $\text{NH}_4^+-\text{N}/\text{NO}_3^--\text{N}>1$. Root was the important storage of N and P, but the storage of N and P in stem, leaf and vagina fluctuated greatly. The N/P ratios of two *C. angustifolia* types were all less than 14, which implied that N might be the limiting nutrient of *C. angustifolia*, and the limitation

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degree was higher in typical meadow than in marsh meadow.

Key words [Biomass](#) [Nitrogen and phosphorus nutrition](#) [Structure dynamics](#)
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